Volunteer Lake Assessment Program Individual Lake Reports

BLAISDELL LAKE, SUTTON, NH

MORPHOMETRIC DATA

Watershed Area (Ac.):	448	**Max. Depth (m):**	13.1	**Flushing Rate (yr^{-1}):**	0.3
Surface Area (Ac.):	158	**Mean Depth (m):**	5.2	**P Retention Coef:**	0.86
Shore Length (m):	4,700	**Volume (m^3):**	3,355,500	**Elevation (ft):**	827

TROPHIC CLASSIFICATION

Year	Trophic class
1990	OLIGOTROPHIC
2005	MESOTROPHIC

KNOWN EXOTIC SPECIES

The Waterbody Report Card tables are generated from the 2012 305(b) report on the status of N.H. waters, and are based on data collected from 2001-2011.

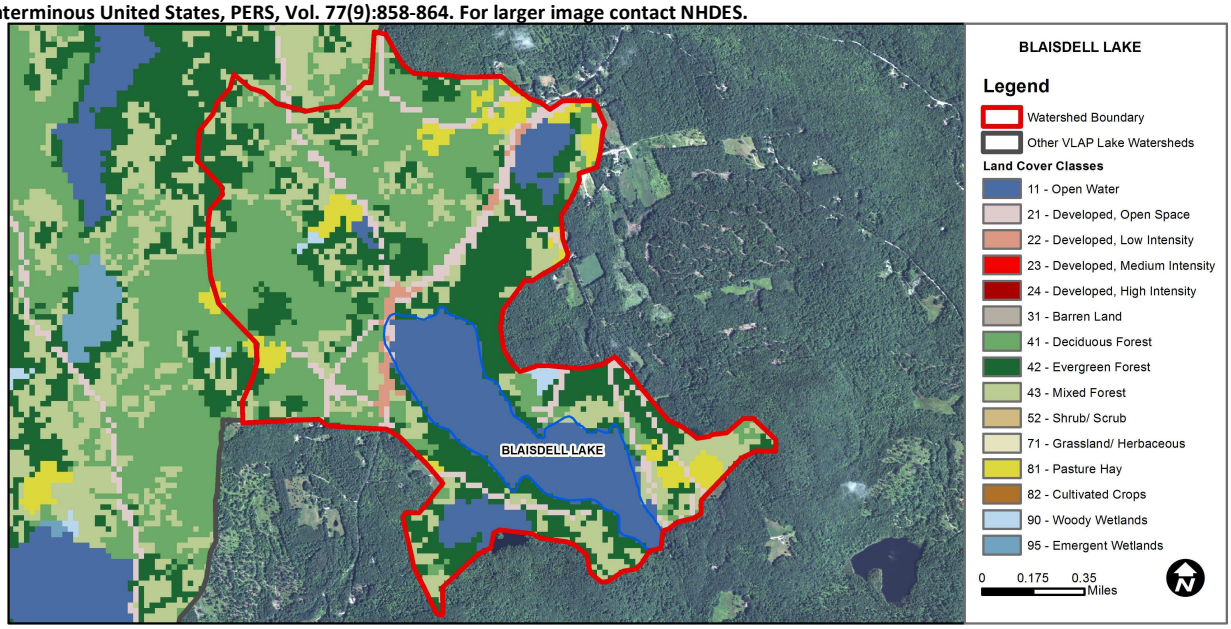
Designated Use	Parameter	Category	Comments
Aquatic Life	Phosphorus (Total)	Slightly Bad	>/=5 samples and median is >threshold.
	pH	Slightly Bad	>10% of samples exceed criteria by a small margin (minimum of 2 exceedances).
	D.O. (mg/L)	Encouraging	< 10 samples and no exceedance of criteria. More data needed.
	D.O. (% sat)	Encouraging	< 10 samples and no exceedance of criteria. More data needed.
	Chlorophyll-a	Slightly Bad	>5 samples and median is > threshold.
Primary Contact Recreation	E. coli	Good	Geometric means < criteria; however at least 1 exceedance of the single sample criteria occurred.
	Chlorophyll-a	Very Good	At least 10 samples with 0 exceedances of criteria.

BEACH PRIMARY CONTACT ASSESSMENT STATUS

BLAISDELL LAKE - CAMP WABASSO BEACH	E. coli	Very Good	All bacteria samples <75% of geometric mean criteria, but not enough to calculate geometric mean. Or, all bacteria samples are < single sample criteria and calculated Geometric means are less than geometric mean criteria.

WATERSHED LAND USE SUMMARY

Fry, J., Xian, G., Jin, S., Dewitz, J., Homer, C., Yang, L., Barnes, C., Herold, N., and Wickham, J., 2011. Completion of the 2006 National Land Cover Database for the Conterminous United States, PERS, Vol. 77(9):858-864. For larger image contact NHDES.



Land Cover Category	% Cover	Land Cover Category	% Cover	Land Cover Category	% Cover
Open Water	17.9	Barren Land	0	Grassland/Herbaceous	0
Developed-Open Space	6.52	Deciduous Forest	27.53	Pasture Hay	5.02
Developed-Low Intensity	1.15	Evergreen Forest	25.92	Cultivated Crops	0
Developed-Medium Intensity	0	Mixed Forest	15.65	Woody Wetlands	0.49
Developed-High Intensity	0	Shrub-Scrub	0	Emergent Wetlands	0

VOLUNTEER LAKE ASSESSMENT PROGRAM INDIVIDUAL LAKE REPORTS
BLAISDELL LAKE, SUTTON, NH
2013 DATA SUMMARY

OBSERVATIONS AND RECOMMENDATIONS (*Refer to Table 1 and Historical Deep Spot Data Graphics)*

- **CHLOROPHYLL-A:** Chlorophyll data were not collected in 2013. Historical trend analysis through 2012 indicates a relatively stable trend with moderate variability between years.
- **CONDUCTIVITY/CHLORIDE:** Tributary conductivity levels were average for most NH lakes; however Russell Pond experienced elevated conductivity in July after 1.5 inches of rainfall. Field data note moderate to high flows exiting the pond indicating the storm event likely flushed additional salts and minerals from the pond. Conductivity levels decreased downstream in the Russell Inlet station. Deep spot conductivity data were not collected in 2013, however historical trend analysis through 2012 indicate relatively stable trend with moderate variability between years.
- **TOTAL PHOSPHORUS:** Phosphorus levels were relatively low in most tributaries. Levels measured in July following the significant storm event were higher than those collected during dry conditions in September. Russell Inlet phosphorus levels were elevated in September due to lower stream flows and organic debris in the sample. Deep spot phosphorus data were not collected in 2013, however historical trend analysis through 2012 indicates relatively stable epilimnetic phosphorus trend with moderate variability between years.
- **TRANSPARENCY:** Transparency was measured with the viewscope in September. The value of 7.8 meters was much better than the state median, and higher than historical averages measured without the use of the viewscope.
- **TURBIDITY:** Tributary turbidity levels were low following the significant storm event in July which is a good sign. Russell Inlet turbidity was elevated in September likely due to low flow conditions.
- **PH:** Average tributary pH levels were in a good range. Deep spot pH data were not collected in 2013, however historical trend analysis through 2012 indicate a significantly decreasing (worsening) epilimnetic pH.
- **RECOMMENDED ACTIONS:** Monitor the deep spot in 2014 to assess in lake water quality conditions. Tributary phosphorus levels increased slightly following a significant storm event, particularly in Billings Inlet. The increased frequency and intensity of storm events highlights the importance of managing stormwater runoff in the watershed. Educate lake and watershed residents on stormwater management projects they can implement on their properties utilizing the "NH Homeowner's Guide to Stormwater Management".

Table 1. 2013 Average Water Quality Data for BLAISDELL LAKE

Station Name	Cond. uS/cm	Total P ug/l	Trans. m	Turb. ntu	pH
			VS		
Deep Spot			7.80		
Billings Inlet	51.0	8		0.85	6.56
Billings Pond	41.0	12		0.94	6.57
Brown Inlet	57.5	8		0.72	6.63
Bum Carter Cove	56.3	7		0.7	6.68
North Shore Trib	56.8	7		0.67	6.71
Outlet	55.8	7		0.62	6.85
Russell Inlet	56.7	29		11.31	6.76
Russell Pond	82.1	12		1.05	6.75

NH Water Quality Standards: Numeric criteria for specific parameters. Results exceeding criteria are considered a water quality violation.
Chloride: < 230 mg/L (chronic)
E. coli: > 88 cts/100 mL – public beach
E. coli: > 406 cts/100 mL – surface waters
Turbidity: > 10 NTU above natural level
pH: 6.5-8.0 (unless naturally occurring)

NH Median Values: Median values for specific parameters generated from historic lake monitoring data.
Alkalinity: 4.9 mg/L
Chlorophyll-a: 4.58 mg/m^3
Conductivity: 40.0 uS/cm
Chloride: 4 mg/L
Total Phosphorus: 12 ug/L
Transparency: 3.2 m
pH: 6.6

HISTORICAL WATER QUALITY TREND ANALYSIS

Parameter	Trend	Explanation	Parameter	Trend	Explanation
pH (2012)	Degrading	Data significantly decreasing.	Chlorophyll-a (2012)	Stable	Trend not significant; data moderately variable.
Conductivity (2012)	Stable	Trend not significant; data moderately variable.	Transparency (2012)	Stable	Trend not significant; data moderately variable.
			Phosphorus (epilimnion) (2012)	Stable	Trend not significant; data moderately variable.